

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 November 2004 (11.11.2004)

PCT

(10) International Publication Number
WO 2004/096082 A3

(51) International Patent Classification⁷: **A61B 5/00**

(21) International Application Number: PCT/US2004/012758

(22) International Filing Date: 26 April 2004 (26.04.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/465,134 24 April 2003 (24.04.2003) US

(71) Applicant (for all designated States except US): THE BOARD OF REGENTS OF THE UNIVERSITY OF TEXAS SYSTEM [US/US]; 201 W. 7th Street, Suite 820, Austin, TX 78701 (US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): ESENALIEV, Rinal, O. [US/US]; 6315 Central City Blvd. #117, Galveston,

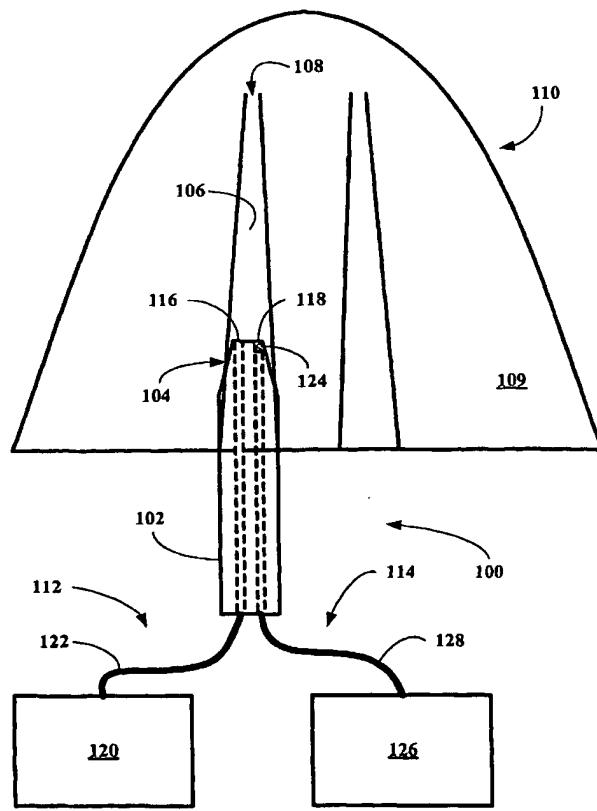
(74) Agent: STROZIER, Robert; P.O. Box 429, 5300 Braeswood Blvd., #369, Houston, Texas 77402 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,

[Continued on next page]

(54) Title: NONINVASIVE BLOOD ANALYSIS BY OPTICAL PROBING OF THE VEINS UNDER THE TONGUE



(57) Abstract: A method for analysis of blood components or parameters is disclosed where a probe (102) having an excitation outlet (116) and a response inlet (118) is placed in proximity to or in contact with a tissue of an underside of a patient's tongue over a big vein (108) in the tongue so that an excitation signal exits the outlet, produces a response which enters the inlet for detection and analysis.

WO 2004/096082 A3



FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

(88) Date of publication of the international search report:
29 December 2004

Published:

- *with international search report*
- *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/12758

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61B 5/00
US CL : 600/322, 323

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
U.S. : 600/322, 323, 310, 340, 344

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4,890,619 A (HATSCHEK) 02 January 1990 (02.01.1990), Figure 4; column 6, line 25 - column 8, line 24.	1-7, 17, 18, 20-22, 25-30, 33, 40, 41, 43, 44
Y		10-14, 32, 34-37
Y	US 4,167,331 A (NIELSEN) 11 September 1979 (11.09.1979), column 8, line 5 - column 10, line 49.	10, 32
Y	US 5,494,031 A (HOEFT) 27 February 1996 (27.02.1996), see the entired document.	11-14, 34-37
X	US 5,341,805 A (STAVRIDI et al) 30 August 1994 (30.08.1994), Figure 9; column 6, lines 20 - 28.	1-4, 8, 21, 22, 25-27, 31, 44
X	US 5,384,003 A (CARO) 20 September 1994 (20.09.1994), column 4, lines 52 - 61, column 8, lines 35 - 43; claim 14.	1-4, 9, 21, 22, 25-27, 32, 44

<input type="checkbox"/>	Further documents are listed in the continuation of Box C.	<input type="checkbox"/>	See patent family annex.
*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier application or patent published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search	Date of mailing of the international search report
28 September 2004 (28.09.2004)	25 OCT 2004
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230	Authorized officer Eric F Winakur Telephone No. 703/308-0858